

Reviewer comments in normal font, our responses in italics.

Reviewer 1

Very nice paper. I have a few comments.

Abstract - State data location data will be archived

The status of the data location and availability will be updated once the paper is finalized (according to the journal policy).

Line 39 Change "2018+ Homestake Mine underground tests at Sanford Facility in North Dakota," to "2018+ EGS Collab Project underground tests at Sanford Underground Research Facility (SURF) in South Dakota,"

Modified.

Line 73 Explain the 29 fracture stages. To me a fracture stage is a location, but there are apparently 6 locations.

We specified this further: Hydraulic tests were performed at six injection intervals (test intervals). In each hydraulic test interval, several fracturing and re-fracturing stages were performed. In total, 29 treatments (stages) of the granitic rock mass at six locations (test intervals) in the horizontal injection borehole were performed underground.

Line 102 "long" should be quantified. These long boreholes are short to most people.

“short” and “long” have been quantified in the text and a description of the “short” boreholes has been added.

Section 2.3.1 State the intervals for these tests.

We refer to Zang et al. (2017) for details on the test intervals and injection schemes used.

Line 169 Change "permeable" to "permeability".

Modified.

Table 1. "M4" to "M10". Verify that these are described in the paper.

Fully agree. These were indeed missing in the text. We added a short description in the text and included the borehole labels also in Fig. 1.

Line 202 The location or reference for the "data archive" needs to be stated.

We have no control on this. As stated above, this will updated by the journal once the paper is finalized.

Figure 6. Define the numbers above each trace.

A description is given in the figure caption “Waveforms are normalized with scale factors (in mV) labelled at the end of each trace.” We added the unit of the scale factor “(in mV)”.

Line 253 State the location of the metadata.

As stated above, this will updated by the journal once the paper is finalized.

Reviewer 2

Very interesting paper, written in a clear language. In the framework of the renewable energy sources and induced seismicity, it is a work that addresses current issues by presenting interesting food for thought and a complete and useful data set.

Thank you for overall positive feedback.

Few observations:

- Line 59: change “Zang et al. (2017)” in “Zang et al (2017a)” as reported in the bibliography. As well as for the other 2017 Zang article: “Zang, Stephansson & Zimmermann (2017)” in “Zang et al (2017b)”

Modified accordingly.

- Line 73: Could you better explain in what the 29 fracture stages consist of compared to the six hydraulic tests?

We specified this further: Hydraulic tests were performed at six injection intervals (test intervals). In each hydraulic test interval, several fracturing and re-fracturing stages were performed. In total, 29 treatments (stages) of the granitic rock mass at six locations (test intervals) in the horizontal injection borehole were performed underground.

- Line 88: I suggest replacing "Geology" with "Geological methods" in line with the other sections (Borehole geophysical methods; Hydraulic methods)

Modified accordingly.

- Line 102: Highlight the location of TASA and TAS02 tunnels in relation to TASN tunnel in figure 1 (if it is possible)

Labels for tunnels and also short boreholes have been added.

- Line 136: Add a reference to the technique used to estimate P and S velocity starting from the ultrasonic pulse transmission data

We added the reference Zang et al. (2017a), which discusses in more detail the velocity estimation.

- Figure 2: “HF1” explain in the text what it refers to. I think it is referred to the six hydraulic tests but it is not explicitly explained; as well as for the following HF? and HF? Refrac codes.

Labels HF1 to HF6 indicate the fracturing tests. For each test, e.g. HF1, labels HF1-F, HF1-RF1, HF1-RF2 etc. indicate the initial fracturing and multiple re-fracturing stages, respectively. This has been added to the text.

- Figure 4: Speaking of "conventional fracturing procedure", why are you referring to figure 2a ? Is it not figure 3a?

Fully agree. Modified accordingly.

- Lines 161-163: “The calculations (details in Zimmermann et al., 2019) are based on the slope of the declining pressure curves after shut-in and are performed for the last 100 seconds of each shut-in period for the conventional treatment with constant flow rates and for the last 40 seconds for the cyclic stages (Fig. 4)”. Does the figure refer only to the case of constant flow rates, right?

Yes, it is correct that Fig.4 refers to the case of a constant flow rate.

- Table 1: M4 e M10 - what are their locations with respect to the area and the injection borehole?

Fully agree. These were indeed missing in the text. We added a short description in the text and included the borehole labels also in Fig. 1.

- Figure 6 : Is the number above each trace the scaling factor?

Yes, as stated in the figure caption: “Waveforms are normalized with scale factors (in mV) given at the end of each trace.” We added also the unit of the scale factor to the caption (mV).

- Line 193: what do you mean by short boreholes? You only give the information about injection borehole length. What about the others(M1-M10)? I see that some of these informations are contained in metadata but you don’t explicitly mentioned that in the text.

Fully agree. These were indeed missing in the text. We added a short description in the text and included the borehole labels also in Fig. 1.